

91 RF 3584

## EG&G ROCKY FLATS

**EG&G ROCKY FLATS, INC.**

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Attn: Cliff Franklin

REVISED DRAFT FINAL OF GROUNDWATER PROTECTION AND MONITORING PROGRAM PLAN  
- JMK-0238-91

Enclosed is a copy of the Draft Final Groundwater Protection and Monitoring Program Plan (GPMPP). The remainder of the GPMPP reports were be hand delivered to your staff on June 13, 1991. The GPMPP is a requirement of DOE Order 5400.1. Included in this draft are the revisions to the DOE comments that were given to EG&G on May 23, 1991 and other revisions made by EG&G/Environmental Management (EM).

It is EM's understanding that this revised Draft Final of the GPMPP is scheduled to be made available to the public June 17, 1991 for a sixty day comment period.

If there are any questions concerning this issue, please contact Jim Langman at extension 5975.

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JWL:nkg

Orig. and 1 cc - R. M. Nelson, Jr.

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## ADMIN RECORD

## EXECUTIVE SUMMARY

The purposes of this document are to define, describe, and evaluate the groundwater protection and monitoring program at Rocky Flats Plant (RFP) and to comply with Department of Energy (DOE) Order 5400.1 (DOE, 1988a). The specific requirement of this Order which this plan addresses is the preparation of a Groundwater Protection Management Program that includes a Groundwater Monitoring Plan, Chapter III, Section 4.a and Chapter IV, Section 9 of the Order, respectively, for each DOE facility at which the Order is applicable.

This entire document meets the requirements for a Groundwater Protection Management Program. Sections 4.0 through 6.0 of this document focus on the Groundwater Monitoring Plan aspect of the Order. In whole, this document constitutes the Groundwater Protection and Monitoring Program Plan (GPMPP) for the Rocky Flats Plant (RFP).

This document is to be reviewed annually and updated every three years. In addition, the "Environmental Protection Implementation Plan Guidance for DOE Order 5400.1" also states the entire Groundwater Monitoring Plan can be used to satisfy the requirements for an Environmental Monitoring Plan as described in Section II. F, Environmental Monitoring Programs, of the guidance document.

Section 1.0 of the GPMPP is an introduction to RFP. It describes the RFP location as well as the chronologic series of events that relate to the groundwater monitoring program.

Section 2.0 is a review of the geology, hydrology, major aquifers, rates of movement of groundwater, analytes contamination identified, and interactions of groundwater with surface water at RFP.

Section 3.0 presents an analysis of the requirements contained in both the State and Federal regulations, DOE Orders, Inter-Agency Agreement (IAG) (DOE, 1991b), and other agreements and evaluates their impact on the RFP groundwater protection program.

Section 4.0 describes the existing Groundwater Protection and Monitoring Program. Specifically, this section of the Plan details the DOE and EG&G program organization and the current groundwater monitoring, protection, and remediation programs.

Section 5.0 is an evaluation of the current Groundwater Protection and Monitoring Program and how it complies with the technical and regulatory requirements.

Section 6.0 is an introspective study which has led to a number of self-improvements that will aid the groundwater monitoring program and ensure its continued compliance with DOE requirements.

Section 7.0 briefly describes future decontamination and decommissioning plans which are expected to impact RFP groundwater programs and identifies the amount of time required to accomplish these activities.

Section 8.0 describes the funding and budgeting procedures at RFP. Included in the text are details about the Activity Data Sheets (ADS) that are used to prepare the DOE Five-Year Plan. This section also details the interactions between RFP and the surrounding communities.

#### **MAJOR DRIVERS GOVERNING GROUNDWATER MONITORING AT RFP**

Included in the State and Federal environmental regulations pertaining to groundwater protection are the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In general, groundwater monitoring under RCRA is similar to that under CERCLA in that the primary objective is to assess the impact of a facility or site on the groundwater beneath it. RCRA requires that a hazardous waste treatment, storage, and disposal facility be treated as either an Interim Status or a Fully Permitted facility.

According to the RCRA Interim Status regulations, the facility's groundwater monitoring program must, at all times, comply with the requirements of one of at least the following types of groundwater monitoring systems: Initial Groundwater Monitoring System, Groundwater Quality Assessment Program, or an Alternate Groundwater Monitoring System.

Three hundred seventy-one wells and piezometers are included in the groundwater monitoring program at RFP. The program has been designed to measure the concentration of hazardous constituents assess the rate of movement, and assess the extent of contaminant plumes in the uppermost aquifer within RFP boundaries (Plate 1). The "uppermost aquifer" is described in Section 2.2 of this document. Three Operable Units (OUs) (the Solar Evaporation Ponds (OU4), the Present Landfill (OU7), and the West Spray Field (OU11)) at RFP are subject to Interim Status groundwater monitoring requirements under RCRA. The remainder of RFP OUs are either subject to groundwater monitoring regulations under CERCLA or do not require a groundwater monitoring system.

The protection portion of the program involves analyses of quarterly groundwater data and subsequent treatment of groundwater that is found to be contaminated. This portion of the plan focused on evaluating the impact of past and present plant operations on groundwater quality at RFP. Any activity that could have an adverse affect on groundwater quality must be reviewed by the EG&G hydrogeology staff as well as other groups and found to have no significant negative impact before the project can begin. Projects that involve excavations or other intrusive work are of particular concern, since

these activities could pose a threat to groundwater by introducing contaminated soils into the uppermost aquifer.

The RFP also has specially qualified hazardous materials teams that can respond quickly to hazardous or mixed waste spills that, if not cleaned up in a timely fashion, could pose a threat to groundwater supplies in the area.

## RFP GROUNDWATER PROTECTION AND MONITORING PLAN

The existing groundwater protection monitoring program in use at RFP includes a Groundwater Quality Assessment Program and Alternate Groundwater Monitoring Systems that comply with the RCRA requirements of 40 CFR 265.90 (d) and 265.93 and the State regulatory requirements of 6 CCR 1007-3, 265.90(d) and 265.93; and with the CERCLA requirements of 40 CFR 300.43 and the state requirements of 6 CCR 1007-3 300.43. Included in the RFP monitoring program are:

- A network of background wells;
- A network of monitoring wells;
- A monthly measurement of water elevations;
- A quarterly sampling and analysis program;
- An assessment program;
- A program for reporting information to the appropriate regulatory agencies on a quarterly and annual basis;
- A well abandonment and replacement program;
- An annual evaluation program; and
- A protection program.

Following quarterly groundwater sampling and laboratory analyses, analytical results undergo data validation and are then entered into the Rocky Flats Environmental Database System (RFEDS) for future retrieval and evaluation.

The RFP groundwater program has been evaluated and every effort is being made to ensure it is in compliance with both the State and Federal regulatory requirements. Each quarter, following receipt of the RCRA data, these data are evaluated using appropriate assessment techniques. The results of these assessments are reported to the Colorado Department of Health (CDH) and the Environmental Protection Agency (EPA) on an annual basis prior to March 1 of the following calendar year.

### SELF-IMPROVEMENTS

The following improvements are considered to be self-improvements.

- At the current time, procedures are being developed to effectively track data from point of origination (field sample collection) until these data are entered into RFEDS. By effectively tracking the samples from collection to entry into RFEDS, the turnaround time can be reduced to a maximum of 90 days. This is considered a reasonable length of time for data to be incorporated into the quarterly assessments.
- The required documentation for the RCRA quarterly groundwater analysis reports will be specified and a set of guidelines established. Streamlining the format of RFEDS reports and subsequent statistical analyses will aid in timely completion of data evaluations for possible groundwater concerns. These reports will be subcontracted out until RFP has added the necessary staff to prepare them in-house.
- Incorporation of geologic and hydrologic data on a routine basis into the site's hydrogeologic model will ensure that the groundwater monitoring program is in compliance with RCRA requirements and that the rate and extent of contaminant concentrations are adequately characterized. Observed changes can then be evaluated to assess if installation of additional monitoring wells or initiation of other investigations is necessary.

- An analytical evaluation of data sources to reduce redundant data collection will result in major cost savings. Wells monitoring the same hydrogeologic unit will be eliminated to avoid duplication. A shortened analyte list will be established to monitor known contaminants in order to avoid sampling for insignificant constituents at specific locals.
- A self audit of the groundwater program will be held on an annual basis. The self audit will include inspecting the groundwater monitoring system for compliance to all regulatory requirements, proposed requirements, and guidance applicable to groundwater monitoring. Following this study, a there will be detailed inspection and tour of all groundwater monitoring activities to look for possible compliance issues or determine the need for program improvements. The findings will then be evaluated to determine whether or not a need exists to implement changes and/or improvements to the existing program.

## BUDGETARY REQUIREMENTS

At least \$10.99 million are necessary in fiscal year 1991 in order to effectively administer and implement the Groundwater Protection and Monitoring Program Plan. These funds will be used to sample, analyze, assess, and report the groundwater monitoring data. They will also be used to evaluate all of the existing monitoring wells to determine which ones should be abandoned, and possibly replaced, or sampled less frequently.

Future budgetary needs are expected to be:

Fiscal Year	Number of Wells	Budget (x 1,000)
1991	571	\$ 15,670
1993	600	\$ 17,265
1994-1997	600	\$ 18,866